REMARKS

ISSUE NO. 1 - §102(E) REJECTION OF CLAIMS BASED ON MATAYABAS '379 PATENT

Claims 1-10, 12-20, 25-44, 46-55 and 59-64 are rejected under 35 USC §102(e), as being anticipated by Matayabas (US 6469379). The Applicant respectfully disagrees.

Amended Claim 1 recites:

"A thermal interface composition, comprising:

at least two siloxane-based compounds, wherein each compound has a different solubility parameter in order to induce a phase separation between the at least two siloxane-based compounds,

at least one inorganic micro-filler material, and

at least one thermally conductive filler material."

Amended Claim 35 recites:

"A method of forming a thermal interface material, comprising:

providing at least two siloxane-based compounds, wherein each compound has a different solubility parameter,

providing at least one inorganic micro-filler material,

providing at least one thermally conductive filler material, and

combining the at least two siloxane-based compounds, the at least one inorganic micro-filler material and the at least one thermally conductive filler

material, such that a phase separation is induced between the at least two siloxane-based compounds."

Matayabas teaches a curable material useful as a thermal interface material comprising at least one vinyl-terminated silicone oil; at least one conductive filler; and at least one hydrogen terminated silicone oil. It is instructive to note that in Column 7 of the reference, lines 55-65, Matayabas states that low molecular weight silicone oil is beneficial to use in conjunction with the high molecular weight silicone polymers. This mixture apparently helps both the crosslinked polymer and the wettability. (see Column 5, lines 55-65)

Inorganic Fillers v. Thermally Conductive Fillers

First, it is important to note that Matayabas does not teach, describe or disclose providing at least one inorganic micro-filler material and providing at least one thermally conductive filler material followed by combining both in the thermal interface material. Matayabas only claims a thermally conductive filler material. Matayabas mentions that other materials may be added to improve the properties of the thermal interface material, but one of those materials isn't described as an inorganic micro-filler material. It is clear from page 5 of the Examiner's Answer that the Examiner is grouping the fillers of Matayabas into one group. ("Fillers such as copper, boron nitride, etc. can be used".)

The present application states that the inorganic micro-filler material is an important component after achieving phase separation of the at least two siloxane-based compounds. The specification describes the inorganic micro-filler material as:

"may comprise silicon dioxide flakes or powder, silica powder or flakes or a combination thereof. Contemplated inorganic fillers comprise a

> chemical composition similar to that of silicon dioxide and is excessively blended into the coating composition. The filler is pre-coated with hexamethyldisilazane, which makes filler preferably compatible to only one type of polysiloxane. The flake-like filler also has a very small particle size (< 0.1 micro) and a large surface area."

The specification states that this inorganic micro-filler material is important because:

> "In theory, the phase separation of the two macro-monomers cooperated with the filler forms a hedge membrane on the top surface of silicone coating and essentially blocks the passageway of the monomers and oligomers migrating from both coating and GELVET® bases."

Matayabas does not claim or disclose this type of material in the thermal interface materials described in the '379 patent. In addition, its hard to imagine that Mayayabas would anticipate the claims of the present application, since they require the inorganic micro-filler material in order to achieve a useful product in combination with the desired phase separation of the organic materials.

Siloxane-Based Materials comprising Different Solubility Parameters

It appears from the Examiner's Answer that both the Applicant and the Examiner are looking at the same information from different perspectives. The Examiner considers that there are different solubility parameters inherent in using two different siloxane oils, as used in Matayabas. The Applicant is stating that, although that may be true that the two different siloxane oils have different solubility parameters in Matayabas, the solubility parameters are not such that there is a phase separation in Matayabas of the siloxane oils. In other words, two compounds having different

solubility parameters does not mean that there will always be a phase separation effect, but instead may mean that they do not blend as well as other components would – its a matter of degree. This fact is clear from Matayabas who discusses blending the oils to form the crosslinkable thermal interface material as one blended material.

It should be clear, however, that the Applicant is respectfully seeking to work with the Examiner in this case to move this matter forward to allowance, instead of wasting resources through the Appeal process. The Applicant contends that claims 1 and 35 are now allowable as not being anticipated by the prior art. The related dependent claims are also allowable by virtue of their dependency on claims 1 and 35 respectively.

ISSUE NO. 2 - §102(B) REJECTION OF CLAIMS BASED ON MINE ET AL.

Claims 1-14, 16, 18-20, 22-23, 25-48, 50, 52-57 and 59-64 are rejected under 35 USC §102(b), as being anticipated by Mine et al (US 6040362). The Applicant respectfully disagrees.

Amended Claim 1 recites:

"A thermal interface composition, comprising:

at least two siloxane-based compounds, wherein each compound has a different solubility parameter in order to induce a phase separation between the at least two siloxane-based compounds,

at least one inorganic micro-filler material, and

at least one thermally conductive filler material."

Amended Claim 35 recites:

"A method of forming a thermal interface material, comprising:

providing at least two siloxane-based compounds, wherein each compound has a different solubility parameter,

providing at least one inorganic micro-filler material,

providing at least one thermally conductive filler material, and

combining the at least two siloxane-based compounds, the at least one inorganic micro-filler material and the at least one thermally conductive filler material, such that a phase separation is induced between the at least two siloxane-based compounds."

Mine et al. does not anticipate the claims of the present application, because Mine does not recite at least two siloxane-based compounds, wherein each compound has a different solubility parameter. Anticipation generally requires the disclosure in a single prior art reference of each element of the claim under consideration. Further, the prior art reference must disclose each element of the claimed invention arranged as in the claim. Mine does not teach a thermal interface material or a method of making a thermal interface material comprising at least two siloxane-based compounds, wherein each compound has a different solubility parameter.

Siloxane-Based Materials comprising Different Solubility Parameters

It appears from the Examiner's Answer that both the Applicant and the Examiner are looking at the same information from different perspectives. The Examiner considers that there are different solubility parameters inherent in using two different silicon-alkenyl components, as used in Mine. The Applicant is stating that, although that may be true that the two different silicon-alkenyl components have different solubility parameters in Mine, the solubility parameters are not such that there is a phase separation in Mine of the silicon-alkenyl components. In other words, two compounds having different solubility parameters does not mean that there will always be a phase separation effect, but instead may mean that they do not blend as well as other components would – its a matter of degree.

It should be clear, however, that the Applicant is respectfully seeking to work with the Examiner in this case to move this matter forward to allowance, instead of wasting resources through the Appeal process. The Applicant contends that claims 1 and 35 are now allowable as not being anticipated by the prior art. The related dependent claims are also allowable by virtue of their dependency on claims 1 and 35 respectively.

ISSUE NO. 3 - §102(B) REJECTION OF CLAIMS BASED ON THEODORE

Claims 1-15, 17-26, 35-49 and 51-60 are rejected under 35 USC §102(b), as being anticipated by Theodore (US 4292225). The Applicant respectfully disagrees.

Amended Claim 1 recites:

"A thermal interface composition, comprising:

at least two siloxane-based compounds, wherein each compound has a different solubility parameter in order to induce a phase separation between the at least two siloxane-based compounds,

at least one inorganic micro-filler material, and

at least one thermally conductive filler material."

Amended Claim 35 recites:

"A method of forming a thermal interface material, comprising:

providing at least two siloxane-based compounds, wherein each compound has a different solubility parameter,

providing at least one inorganic micro-filler material,

providing at least one thermally conductive filler material, and

combining the at least two siloxane-based compounds, the at least one inorganic micro-filler material and the at least one thermally conductive filler material, such that a phase separation is induced between the at least two siloxane-based compounds."

Theodore et al. does not anticipate the claims of the present application, because Theodore does not recite at least two siloxane-based compounds, wherein each compound has a different solubility parameter. Anticipation generally requires the disclosure in a single prior art reference of each element of the claim under consideration. Further, the prior art reference must disclose each element of the claimed invention arranged as in the claim. Theodore does not teach a thermal interface material or a method of making a thermal interface material comprising at least two siloxane-based compounds, wherein each compound has a different solubility parameter.

Siloxane-Based Materials comprising Different Solubility Parameters

It appears from the Examiner's Answer that both the Applicant and the Examiner are looking at the same information from different perspectives. The Examiner considers that there are different solubility parameters inherent in using two different siloxanes, as used in Theodore. The Applicant is stating that, although that may be true that the two different siloxanes have different solubility parameters in Theodore, the solubility parameters are not such that there is a phase separation in Theodore of the siloxanes. In other words, two compounds having different solubility parameters does not mean that there will always be a phase separation effect, but instead may mean that they do not blend as well as other components would – its a matter of degree.

It should be clear, however, that the Applicant is respectfully seeking to work with the Examiner in this case to move this matter forward to allowance, instead of wasting resources through the Appeal process. The Applicant contends that claims 1 and 35 are now allowable as not being anticipated by the prior art. The related dependent claims are also allowable by virtue of their dependency on claims 1 and 35 respectively.

ISSUE NO. 4 - §102(B) REJECTION OF CLAIMS BASED ON HANSON

Claims 1-5, 8-10, 12-15, 17-18, 25-39, 43-44, 46-49, 51-52 and 59-64 are rejected under 35 USC §102(b), as being anticipated by Hanson (US 5950066). The Applicant respectfully disagrees.

Amended Claim 1 recites:

"A thermal interface composition, comprising:

at least two siloxane-based compounds, wherein each compound has a different solubility parameter in order to induce a phase separation between the at least two siloxane-based compounds,

at least one inorganic micro-filler material, and

at least one thermally conductive filler material."

Amended Claim 35 recites:

"A method of forming a thermal interface material, comprising:

providing at least two siloxane-based compounds, wherein each compound has a different solubility parameter,

providing at least one inorganic micro-filler material,

providing at least one thermally conductive filler material, and

combining the at least two siloxane-based compounds, the at least one inorganic micro-filler material and the at least one thermally conductive filler material, such that a phase separation is induced between the at least two siloxane-based compounds."

Hanson does not anticipate the claims of the present application, because Hanson does not recite at least two siloxane-based compounds, wherein each compound has a different solubility parameter. Anticipation generally requires the disclosure in a single prior art reference of each element of the claim under consideration. Further, the prior art reference must disclose each element of the claimed invention arranged as in the claim. Hanson does not teach a thermal interface material or a method of making a thermal interface material comprising at least two siloxane-based compounds, wherein each compound has a different solubility parameter.

Inorganic Fillers v. Thermally Conductive Fillers

First, it is important to note that Hanson does not teach, describe or disclose providing at least one inorganic micro-filler material and providing at least one thermally conductive filler material followed by combining both in the thermal interface material. Hanson only claims a thermally conductive filler material. Hanson mentions that other materials may be added to improve the properties of the thermal interface material, but one of those materials isn't described as an inorganic micro-filler material. It is clear from page 7 of the Examiner's Answer that the Examiner is grouping the fillers of Hanson into one group. ("Fillers such as alumina, boron nitride, metal powders, etc. and mixtures thereof".)

The present application states that the inorganic micro-filler material is an important component after achieving phase separation of the at least two siloxane-based compounds. The specification describes the inorganic micro-filler material as:

> "may comprise silicon dioxide flakes or powder, silica powder or flakes or a combination thereof. Contemplated inorganic fillers comprise a

chemical composition similar to that of silicon dioxide and is excessively blended into the coating composition. The filler is pre-coated with hexamethyldisilazane, which makes filler preferably compatible to only one type of polysiloxane. The flake-like filler also has a very small particle size (< 0.1 micro) and a large surface area."

The specification states that this inorganic micro-filler material is important because:

"In theory, the phase separation of the two macro-monomers cooperated with the filler forms a hedge membrane on the top surface of silicone coating and essentially blocks the passageway of the monomers and oligomers migrating from both coating and GELVET® bases."

Hanson does not claim or disclose this type of material in the thermal interface materials. In addition, its hard to imagine that Hanson would anticipate the claims of the present application, since they require the inorganic micro-filler material in order to achieve a useful product in combination with the desired phase separation of the organic materials.

Siloxane-Based Materials comprising Different Solubility Parameters

It appears from the Examiner's Answer that both the Applicant and the Examiner are looking at the same information from different perspectives. The Examiner considers that there are different solubility parameters inherent in using two different siloxanes, as used in Hanson. The Applicant is stating that, although that may be true that the two different siloxanes have different solubility parameters in Hanson, the solubility parameters are not such that there is a phase separation in Hanson of the siloxanes. In other words, two compounds having different solubility parameters does

not mean that there will always be a phase separation effect, but instead may mean that they do not blend as well as other components would – its a matter of degree.

It should be clear, however, that the Applicant is respectfully seeking to work with the Examiner in this case to move this matter forward to allowance, instead of wasting resources through the Appeal process. The Applicant contends that claims 1 and 35 are now allowable as not being anticipated by the prior art. The related dependent claims are also allowable by virtue of their dependency on claims 1 and 35 respectively.

ISSUE NO. 5 - §103(A) REJECTION OF CLAIMS BASED ON MATAYABAS

Claims 21, 24, 55 and 58 are rejected under 35 USC §103(a) as unpatentable over Matayabas (US 6469379). The Applicant respectfully disagrees.

Procedurally, this rejection is inappropriate for two reasons. First, all of the claims cited in the 103(a) rejections are dependent claims. Independent claims 1 and 35 are not cited as being obvious in view of these references – and therefore, they are allowable. Since they are allowable, the dependant claims to which they refer are also allowable. Second, claims are not obvious in view of only one reference, but instead in view of a combination of references. If there is only one reference cited, it should properly be cited as a reference which anticipates the claims cited and not renders obvious those same claims.

In order to expedite prosecution of this application, however, the Applicants will address the references.

Amended Claim 1 recites:

"A thermal interface composition, comprising:

at least two siloxane-based compounds, wherein each compound has a different solubility parameter <u>in order to induce a phase separation between the at least two siloxane-based compounds</u>,

at least one inorganic micro-filler material, and

at least one thermally conductive filler material."

Amended Claim 35 recites:

"A method of forming a thermal interface material, comprising:

providing at least two siloxane-based compounds, wherein each compound has a different solubility parameter,

providing at least one inorganic micro-filler material,

providing at least one thermally conductive filler material, and

combining the at least two siloxane-based compounds, the at least one inorganic micro-filler material and the at least one thermally conductive filler material<u>, such that a phase separation is induced between the at least two siloxane-based compounds</u>."

Matayabas teaches a curable material useful as a thermal interface material comprising at least one vinyl-terminated silicone oil; at least one conductive filler; and at least one hydrogen terminated silicone oil. It is instructive to note that in Column 7 of the reference, lines 55-65, Matayabas states that low molecular weight silicone oil is beneficial to use in conjunction with the high molecular weight silicone polymers. This mixture apparently helps both the crosslinked polymer and the wettability. (see Column 5, lines 55-65)

Inorganic Fillers v. Thermally Conductive Fillers

First, it is important to note that Matayabas does not teach, describe or disclose providing at least one inorganic micro-filler material and providing at least one thermally conductive filler material followed by combining both in the thermal interface material. Matayabas only claims a thermally conductive filler material. Matayabas mentions that other materials may be added to improve the properties of the thermal interface material, but one of those materials isn't described as an inorganic micro-filler material.

It is clear from page 5 of the Examiner's Answer that the Examiner is grouping the fillers of Matayabas into one group. ("Fillers such as copper, boron nitride, etc. can be used".)

The present application states that the inorganic micro-filler material is an important component after achieving phase separation of the at least two siloxane-based compounds. The specification describes the inorganic micro-filler material as:

> "may comprise silicon dioxide flakes or powder, silica powder or flakes or a combination thereof. Contemplated inorganic fillers comprise a chemical composition similar to that of silicon dioxide and is excessively blended into the coating composition. The filler is pre-coated with hexamethyldisilazane, which makes filler preferably compatible to only one type of polysiloxane. The flake-like filler also has a very small particle size (< 0.1 micro) and a large surface area."

The specification states that this inorganic micro-filler material is important because:

> "In theory, the phase separation of the two macro-monomers cooperated with the filler forms a hedge membrane on the top surface of silicone coating and essentially blocks the passageway of the monomers and oligomers migrating from both coating and GELVET® bases."

Matayabas does not claim or disclose this type of material in the thermal interface materials described in the '379 patent. In addition, its hard to imagine that Mayayabas would render obvious the claims of the present application, since they require the inorganic micro-filler material in order to achieve a useful product in combination with the desired phase separation of the organic materials, and it is doubtful that one of ordinary skill in the art would arrive at the claims of the present application after a fair reading of Matayabas.

Siloxane-Based Materials comprising Different Solubility Parameters

It appears from the Examiner's Answer that both the Applicant and the Examiner are looking at the same information from different perspectives. The Examiner considers that there are different solubility parameters inherent in using two different siloxane oils, as used in Matayabas. The Applicant is stating that, although that may be true that the two different siloxane oils have different solubility parameters in Matayabas, the solubility parameters are not such that there is a phase separation in Matayabas of the siloxane oils. In other words, two compounds having different solubility parameters does not mean that there will always be a phase separation effect, but instead may mean that they do not blend as well as other components would – its a matter of degree. This fact is clear from Matayabas who discusses blending the oils to form the crosslinkable thermal interface material as one blended material.

It should be clear, however, that the Applicant is respectfully seeking to work with the Examiner in this case to move this matter forward to allowance, instead of wasting resources through the Appeal process. The Applicant contends that claims 1 and 35 are now allowable as not being unpatentable in view of the prior art. The related dependent claims are also allowable by virtue of their dependency on claims 1 and 35 respectively.

<u>Issue No. 6 - §103(a) Rejection of Claims Based on Matayabas in view of Mine</u>

Claims 22 and 56 are rejected under 35 USC §103(a) as unpatentable over Matayabas (US 6469379) in view of Mine et al (US 6040362). The Applicant respectfully disagrees.

Procedurally, this rejection is inappropriate. All of the claims cited in the 103(a) rejection are dependent claims. Independent claims 1 and 35 are not cited as being obvious in view of these references – and therefore, they are allowable. Since they are allowable, the dependant claims to which they refer are also allowable.

In order to expedite prosecution of this application, however, the Applicants will address the references.

Amended Claim 1 recites:

"A thermal interface composition, comprising:

at least two siloxane-based compounds, wherein each compound has a different solubility parameter <u>in order to induce a phase separation between the at least two siloxane-based compounds</u>,

at least one inorganic micro-filler material, and

at least one thermally conductive filler material."

Amended Claim 35 recites:

"A method of forming a thermal interface material, comprising:

providing at least two siloxane-based compounds, wherein each compound has a different solubility parameter,

providing at least one inorganic micro-filler material,

providing at least one thermally conductive filler material, and

combining the at least two siloxane-based compounds, the at least one inorganic micro-filler material and the at least one thermally conductive filler material, such that a phase separation is induced between the at least two siloxane-based compounds."

Matayabas teaches a curable material useful as a thermal interface material comprising at least one vinyl-terminated silicone oil; at least one conductive filler; and at least one hydrogen terminated silicone oil. It is instructive to note that in Column 7 of the reference, lines 55-65, Matayabas states that low molecular weight silicone oil is beneficial to use in conjunction with the high molecular weight silicone polymers. This mixture apparently helps both the crosslinked polymer and the wettability. (see Column 5, lines 55-65)

Inorganic Fillers v. Thermally Conductive Fillers

First, it is important to note that Matayabas does not teach, describe or disclose providing at least one inorganic micro-filler material and providing at least one thermally conductive filler material followed by combining both in the thermal interface material. Matayabas only claims a thermally conductive filler material. Matayabas mentions that other materials may be added to improve the properties of the thermal interface material, but one of those materials isn't described as an inorganic micro-filler material. It is clear from page 5 of the Examiner's Answer that the Examiner is grouping the fillers of Matayabas into one group. ("Fillers such as copper, boron nitride, etc. can be used".)

The present application states that the inorganic micro-filler material is an important component after achieving phase separation of the at least two siloxane-based compounds. The specification describes the inorganic micro-filler material as:

> "may comprise silicon dioxide flakes or powder, silica powder or flakes or a combination thereof. Contemplated inorganic fillers comprise a chemical composition similar to that of silicon dioxide and is excessively blended into the coating composition. The filler is pre-coated with hexamethyldisilazane, which makes filler preferably compatible to only one type of polysiloxane. The flake-like filler also has a very small particle size (< 0.1 micro) and a large surface area."

The specification states that this inorganic micro-filler material is important because:

> "In theory, the phase separation of the two macro-monomers cooperated with the filler forms a hedge membrane on the top surface of silicone coating and essentially blocks the passageway of the monomers and oligomers migrating from both coating and GELVET® bases."

Matayabas does not claim or disclose this type of material in the thermal interface materials described in the '379 patent. In addition, its hard to imagine that Mayayabas would render obvious the claims of the present application, since they require the inorganic micro-filler material in order to achieve a useful product in combination with the desired phase separation of the organic materials, and it is doubtful that one of ordinary skill in the art would arrive at the claims of the present application after a fair reading of Matayabas.

Siloxane-Based Materials comprising Different Solubility Parameters

It appears from the Examiner's Answer that both the Applicant and the Examiner are looking at the same information from different perspectives. The Examiner considers that there are different solubility parameters inherent in using two different siloxane oils, as used in Matayabas, or the silicon-alkenyl components shown in Mine. The Applicant is stating that, although that may be true that the two different siloxane oils have different solubility parameters in Matayabas or Mine, the solubility parameters are not such that there is a phase separation in Matayabas of the siloxane oils or Mine of the silicon-alkenyl components. In other words, two compounds having different solubility parameters does not mean that there will always be a phase separation effect, but instead may mean that they do not blend as well as other components would – its a matter of degree. This fact is clear from Matayabas who discusses blending the oils to form the crosslinkable thermal interface material as one blended material.

It should be clear, however, that the Applicant is respectfully seeking to work with the Examiner in this case to move this matter forward to allowance, instead of wasting resources through the Appeal process. The Applicant contends that claims 1 and 35 are now allowable as not being unpatentable in view of the prior art. The related dependent claims are also allowable by virtue of their dependency on claims 1 and 35 respectively.

<u>ISSUE NO. 7 - §103(A) REJECTION OF CLAIMS BASED ON HANSON</u>

Claims 21 and 55 are rejected under 35 USC §103(a) as unpatentable over Hanson (US 5950066). The Applicant respectfully disagrees.

Procedurally, this rejection is inappropriate for two reasons. First, all of the claims cited in the 103(a) rejections are dependent claims. Independent claims 1 and 35 are not cited as being obvious in view of these references – and therefore, they are allowable. Since they are allowable, the dependant claims to which they refer are also allowable. Second, claims are not obvious in view of only one reference, but instead in view of a combination of references. If there is only one reference cited, it should properly be cited as a reference which anticipates the claims cited and not renders obvious those same claims.

In order to expedite prosecution of this application, however, the Applicants will address the references.

Amended Claim 1 recites:

"A thermal interface composition, comprising:

at least two siloxane-based compounds, wherein each compound has a different solubility parameter <u>in order to induce a phase separation between the at least two siloxane-based compounds</u>,

at least one inorganic micro-filler material, and

at least one thermally conductive filler material."

Amended Claim 35 recites:

"A method of forming a thermal interface material, comprising:

providing at least two siloxane-based compounds, wherein each compound has a different solubility parameter,

providing at least one inorganic micro-filler material,

providing at least one thermally conductive filler material, and

combining the at least two siloxane-based compounds, the at least one inorganic micro-filler material and the at least one thermally conductive filler material, such that a phase separation is induced between the at least two siloxane-based compounds."

Inorganic Fillers v. Thermally Conductive Fillers

First, it is important to note that Hanson does not teach, describe or disclose providing at least one inorganic micro-filler material and providing at least one thermally conductive filler material followed by combining both in the thermal interface material. Hanson only claims a thermally conductive filler material. Hanson mentions that other materials may be added to improve the properties of the thermal interface material, but one of those materials isn't described as an inorganic micro-filler material. It is clear from page 7 of the Examiner's Answer that the Examiner is grouping the fillers of Hanson into one group. ("Fillers such as alumina, boron nitride, metal powders, etc. and mixtures thereof".)

The present application states that the inorganic micro-filler material is an important component after achieving phase separation of the at least two siloxane-based compounds. The specification describes the inorganic micro-filler material as:

"may comprise silicon dioxide flakes or powder, silica powder or flakes or a combination thereof. Contemplated inorganic fillers comprise a

chemical composition similar to that of silicon dioxide and is excessively blended into the coating composition. The filler is pre-coated with hexamethyldisilazane, which makes filler preferably compatible to only one type of polysiloxane. The flake-like filler also has a very small particle size (< 0.1 micro) and a large surface area."

The specification states that this inorganic micro-filler material is important because:

"In theory, the phase separation of the two macro-monomers cooperated with the filler forms a hedge membrane on the top surface of silicone coating and essentially blocks the passageway of the monomers and oligomers migrating from both coating and GELVET® bases."

Hanson does not claim or disclose this type of material in the thermal interface materials. In addition, its hard to imagine that Hanson would render obvious the claims of the present application, since they require the inorganic micro-filler material in order to achieve a useful product in combination with the desired phase separation of the organic materials.

Siloxane-Based Materials comprising Different Solubility Parameters

It appears from the Examiner's Answer that both the Applicant and the Examiner are looking at the same information from different perspectives. The Examiner considers that there are different solubility parameters inherent in using two different siloxanes, as used in Hanson. The Applicant is stating that, although that may be true that the two different siloxanes have different solubility parameters in Hanson, the solubility parameters are not such that there is a phase separation in Hanson of the siloxanes. In other words, two compounds having different solubility parameters does

not mean that there will always be a phase separation effect, but instead may mean that they do not blend as well as other components would – its a matter of degree.

It should be clear, however, that the Applicant is respectfully seeking to work with the Examiner in this case to move this matter forward to allowance, instead of wasting resources through the Appeal process. The Applicant contends that claims 1 and 35 are now allowable as not being unpatentable in view of the prior art. The related dependent claims are also allowable by virtue of their dependency on claims 1 and 35 respectively.

ISSUE NO. 8 - §103(A) REJECTION OF CLAIMS BASED ON HANSON IN VIEW OF MATAYABAS

Claims 16 and 50 are rejected under 35 USC §103(a) as unpatentable over Hanson (US 5950066) in view of Matayabas (US 2003/0168731). The Applicant respectfully disagrees.

Procedurally, this rejection is inappropriate. All of the claims cited in the 103(a) rejection are dependent claims. Independent claims 1 and 35 are not cited as being obvious in view of these references – and therefore, they are allowable. Since they are allowable, the dependant claims to which they refer are also allowable.

In order to expedite prosecution of this application, however, the Applicants will address the references.

Amended Claim 1 recites:

"A thermal interface composition, comprising:

at least two siloxane-based compounds, wherein each compound has a different solubility parameter in order to induce a phase separation between the at least two siloxane-based compounds,

at least one inorganic micro-filler material, and

at least one thermally conductive filler material."

Amended Claim 35 recites:

"A method of forming a thermal interface material, comprising:

providing at least two siloxane-based compounds, wherein each compound has a different solubility parameter,

providing at least one inorganic micro-filler material,

providing at least one thermally conductive filler material, and

combining the at least two siloxane-based compounds, the at least one inorganic micro-filler material and the at least one thermally conductive filler material, such that a phase separation is induced between the at least two siloxane-based compounds."

Matayabas teaches a curable material useful as a thermal interface material comprising at least one vinyl-terminated silicone oil; at least one conductive filler; and at least one hydrogen terminated silicone oil.

Inorganic Fillers v. Thermally Conductive Fillers

First, it is important to note that Matayabas does not teach, describe or disclose providing at least one inorganic micro-filler material and providing at least one thermally conductive filler material followed by combining both in the thermal interface material. Matayabas only claims a thermally conductive filler material. Matayabas mentions that other materials may be added to improve the properties of the thermal interface material, but one of those materials isn't described as an inorganic micro-filler material.

The present application states that the inorganic micro-filler material is an important component after achieving phase separation of the at least two siloxane-based compounds. The specification describes the inorganic micro-filler material as:

"may comprise silicon dioxide flakes or powder, silica powder or flakes or a combination thereof. Contemplated inorganic fillers comprise a chemical composition similar to that of silicon dioxide and is excessively blended into the coating composition. The filler is pre-coated with hexamethyldisilazane, which makes filler preferably compatible to only one type of polysiloxane. The flake-like filler also has a very small particle size (< 0.1 micro) and a large surface area."

The specification states that this inorganic micro-filler material is important because:

"In theory, the phase separation of the two macro-monomers cooperated with the filler forms a hedge membrane on the top surface of silicone coating and essentially blocks the passageway of the monomers and oligomers migrating from both coating and GELVET® bases."

Matayabas does not claim or disclose this type of material in the thermal interface materials described in the '731 publication. In addition, its hard to imagine that Matayabas would render obvious the claims of the present application, since they require the inorganic micro-filler material in order to achieve a useful product in combination with the desired phase separation of the organic materials, and it is doubtful that one of ordinary skill in the art would arrive at the claims of the present application after a fair reading of Matayabas.

Siloxane-Based Materials comprising Different Solubility Parameters

It appears from the Examiner's Answer that both the Applicant and the Examiner are looking at the same information from different perspectives. The Examiner considers that there are different solubility parameters inherent in using two different

siloxane oils, as used in Matayabas. The Applicant is stating that, although that may be true that the two different siloxane oils have different solubility parameters in Matayabas, the solubility parameters are not such that there is a phase separation in Matayabas of the siloxane oils. In other words, two compounds having different solubility parameters does not mean that there will always be a phase separation effect, but instead may mean that they do not blend as well as other components would – its a matter of degree. This fact is clear from Matayabas who discusses blending the oils to form the crosslinkable thermal interface material as one blended material.

It should be clear, however, that the Applicant is respectfully seeking to work with the Examiner in this case to move this matter forward to allowance, instead of wasting resources through the Appeal process. The Applicant contends that claims 1 and 35 are now allowable as not being unpatentable in view of the prior art. The related dependent claims are also allowable by virtue of their dependency on claims 1 and 35 respectively.

REQUEST FOR ALLOWANCE & REQUEST FOR TELECONFERENCE

Claims 1-64 are pending in this application, and the Applicant respectfully requests that the Examiner reconsider all of the claims in light of the arguments presented herein and allow the pending claims. In addition, the Applicant respectfully requests that the Examiner contact the undersigned Attorney-of-Record to discuss this matter through the interview process, if this case is not put in condition for allowance through this response. The Applicant would like to resolve this matter as quickly as possible.

Respectfully submitted,

Buchalter Nemer, A Prof. Corporation

Dated: March 14, 2008 By: Sandra Thompson

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